Microcosm-III

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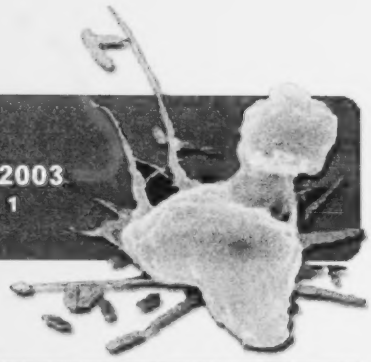

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Canadian Research Coalition for Safe Food and Water

Food safety is an issue that touches the minds and lives of virtually all Canadians. In fact, 74 per cent of Canadians are concerned about food safety, according to a 2001 Ipsos-Reid poll, and nearly half of those said they were "very concerned." So when Dr. Judith Bray, Institute of Infection and Immunity Assistant Director, Special Projects, invited leaders in Canada's food and water research and industry sectors to join the Institute in developing a research coalition in the area, they were all supportive. From that initial response grew the 15-member Canadian Research Coalition for Safe Food and Water.

At the group's anniversary meeting on Oct. 31, 2002, a signed Memorandum of Understanding (MOU) was distributed to the partners, who are all stakeholder groups either funding research in this area, or having strong interest in and commitment to ensuring the safety of Canada's food and water. The agreement represents the partners' willingness to support, according to the MOU, "cooperation in the research agenda of science and technology related to food and water safety in Canada."

The Canadian Water Network (CWN), a Network of Centres of Excellence, is one of the partners in the coalition. "We are interested in the whole aspect of creating and delivering safe, clean water to Canadians," says Dr. Grahame Farquhar, Associate Director. The CWN currently includes over 112 scientists representing 29 Canadian universities. Many of these scientists served as

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Participants in the Oct. 31, 2002, meeting of the Canadian Research Coalition for Safe Food and Water. Seated, from left to right: John ApSimon, Kim Elmslie, Primal Silva, Judith Bray, Lorne Babiuk, Carol Richardson. Standing, from left to right, Mansell Griffiths, Paul Sockett, Michelle Gagnon, Steve Leach, Lynda Wood, Jim Richards, Catherine Armour, Grahame Farquhar, Linda Poste-Flynn, Ying Gravel, Gordon Ditthorner, Mohamed Karmali, David Rideout, Marc Ouellette, Bruce Moor, Tess Laidlaw. Missing from photo: Bonnie Jean MacDonald, Patrick Haag. For a complete list of partners see page 7.

III & JDRF search for a cure for Type 1 diabetes

The raison d'être of the Juvenile Diabetes Research Foundation (JDRF) is finding a cure for juvenile, or Type 1, diabetes. A particularly severe/punishing form of the disease, it most often attacks children and adolescents but can also attack adults, making them insulin-dependent for life. Type 1 diabetes has been designated a strategic research priority of the Institute of Infection and Immunity, setting the stage for the continuation of a history of partnership with JDRF that began before the advent of CIHR. Helaine Shiff, founder of the Toronto chapter in 1974, is very familiar with that history. "We set the wheels in motion for the beginnings of partnership with, at that time, the Medical Research Council, approximately 10 years ago," says Ms. Shiff. She believes it was

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Message from the Scientific Director

The safety of food and water has consistently been a top concern of Canadians. This was reflected in consultations with infection and immunity research communities and stakeholders during the development of the Institute of Infection and Immunity. These consultations consistently indicated that the microbial safety of food and water should be a top research priority.

The Institute was created to target issues like food and water safety with strategic research designed to support, mobilize and connect research communities in the area. With the signing of a Memorandum of Understanding among the 15 partners of the Canadian Research Coalition for Safe Food and Water, the Institute has formalized its commitment to this area. In this edition, we describe the Institute's initiatives, with its partners, to preserve the safety of Canada's food and water.

The health research environment has changed since our last newsletter, taking on an air of anticipation as the country awaits the impact on the federal health care budget of the reports by the Commission on the Future of Health Care in Canada, headed by Roy Romanow, and by the Standing Senate Committee on Social Affairs, Science and Technology, chaired by the Hon. Michael Kirby. The Institute of Infection and Immunity is supportive of Romanow's call for a national immunization strategy, recognizing that immunization is one of the most effective means of preventing illness. The Institute is participating with Health Canada, along with provincial and national partners, in the development of a National Immunization Strategy. As well, the Institute and its partners are developing an immunization awareness initiative to assess consumer attitudes and concerns regarding vaccines. In future editions of our newsletter, we will explore this issue more deeply, and feature III researchers working in the area.

To ensure this newsletter suits your needs, we welcome your feedback. As always, we also welcome your input regarding our research priorities and programs.

Dr. Bhagirath Singh
Scientific Director
Institute of Infection and Immunity
Canadian Institutes of Health Research

The Institute Advisory Board.....they make it possible

The Institute of Infection and Immunity's 15-member advisory board was selected to represent a wide range of researchers, policy advisors and members of the lay community. The Institute Advisory Board (IAB) provides support and direction to the Scientific Director in aligning Institute activities with the III mission of establishing national priorities and leadership in research and training in the areas of infection and immunity. With this profile, we are pleased to continue a series of introductions of our IAB members that began in our September 2002 newsletter.

Introducing Dr. Danielle Malo, DVM, PhD

Photo courtesy of McGill University

The creation of CIHR and its 13 institutes came at a time when Dr. Danielle Malo's days were filled with being an investigator, associate professor, and mother of young children. Nonetheless, Malo says, "It was a privilege and a unique opportunity for me to become a member of the Institute Advisory Board" (IAB).

The first meeting of the IAB took place on March 16, 2001. Many of the board members had never met, but all had committed to supporting the evolution of the Institute. "It took some time ...but the interactions among board members with diverse expertise have created a structure for the new institute," says Malo, a researcher based at McGill University. "And in addition to developing new strategic programs, we're developing a vision of the role of the Institute in the Canadian research community."

Infectious disease continues to be a serious and growing problem worldwide, and this is where Malo's current research interests lie. She is investigating the genetic aspects of host resistance to infection by the Gram-negative bacteria *Salmonella*, and the genetic factors of the infected host's response to a major virulence factor of Gram-negative bacteria.

Of her participation on the IAB, Malo says, "I use my experience as a researcher to bring that perspective forward." Malo believes the creation of the Institute is bringing about major changes that may have an impact on the structure of science. For example, she has watched her clinician colleagues struggle to survive in a grant-supported research environment. Of the Institute's development of a clinician-scientist training program, Malo says, "It will be a major achievement for the Institute if we can succeed in building this link between basic and clinical research." But Malo sees the Institute struggling to build relationships with the researchers it supports. "We have to change researchers' perceptions of what we're doing, and to show them it's not the same thing that's been done before."

The aspect of her "real life" work Malo enjoys most is sitting down with one or another of her graduate students or postdoctoral fellows and discussing experiments and results. An area where the Institute must also focus its resources, says Malo, is in building Canada's capacity for training and keeping young scientists at a time when Canada is confronted by an imminent lack of scientists. "We need to introduce young students to science, to develop their imagination and curiousity, and to convince them at a very young age that science is exciting. It will be a difficult task but I think it's feasible. We have no choice if we wish to maintain excellence in research in Canada."

Dr. Malo's research has been recognized through multiple awards and designations. These include a Senior Scientist award from the Fonds de la recherche en santé du Québec and a CIHR Investigator Scholarship; an appointment as an International Scholar of the Howard Hughes Medical Institute; and an appointment as a William Dawson Scholar at McGill University. Dr. Malo is also a member of the Canadian Bacterial Diseases Network, a Network of Centres of Excellence.

III & JDRF search for a cure for Type 1 diabetes

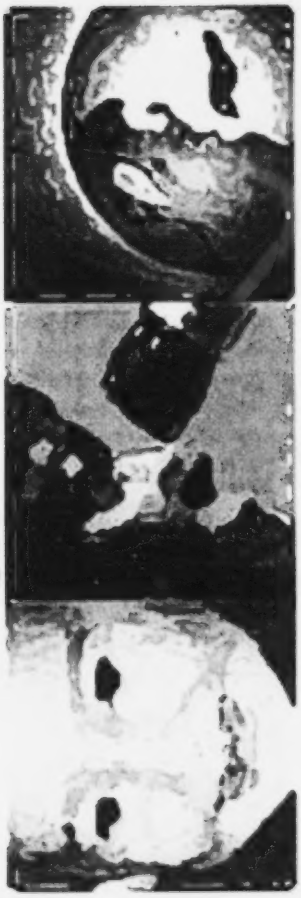

Photo courtesy of JDRF International
Dr. Nierras with JDRF colleagues. From left to right: Margery Perry, Chair, JDRF Lay Review Committee; Judy Hunt, Lay Review Committee member; Richard Furlanetto, MD, JDRF Scientific Director; Catherine Sigal, PhD, JDRF National Director, Research; Concepcion Nierras, PhD, JDRF Associate Director of Research.

(Continued from page 1)

the first time the MRC had partnered with a not-for-profit organization.

JDRF, the world's leading non-profit, non-governmental funder of diabetes research, has raised more than $600 million for research on Type 1 diabetes. There are fundraising chapters and affiliates located all over the world, including Australia, Chile, Greece, India, Israel, Italy, Puerto Rico, the United Kingdom, the United States and Canada. The "research business," as Dr. Concepcion Nierras refers to the evaluation of applications and dissemination of awards for researchers, takes place at the head office of JDRF International in New York.

Dr. Nierras, JDRF International's Associate Director of Research, explains that although JDRF partners with both domestic and international organizations, Canada leads the partnership list in terms of funding commitments. "There's been understanding, enthusiasm and a willingness to work together. That has been the signature of our partnerships with Canadians." Dr. Nierras says there is a great deal of Canadian expertise in various facets of research on this disease, pointing to the Edmonton Protocol, a technique for transplanting pancreatic islet cells that appears to eliminate the need for daily insulin injections by restoring blood sugar control. The protocol was developed by Dr. James Shapiro and colleagues at the University of Alberta in Edmonton, AB.

An autoimmune disease, Type 1 diabetes is caused when the immune system destroys the pancreatic beta cells responsible for producing insulin. Without these cells, the body is unable to process glucose—it has cut itself off from its primary energy source. In its various guises, diabetes is a disease that can result in kidney failure, blindness, nerve damage, amputation, heart attack and stroke.

Dr. I. George Fantus and Dr. David Hill are principal investigators for two New Emerging Teams (a CIHR funding tool created to support the development of new networks of researchers) supported by a partnership among JDRF, the Institute of Infection and Immunity, and the CIHR Institutes of Nutrition, Metabolism and Diabetes (INMD) and Human Development, Child and Youth Health (IHDCYH). Fantus says he's very happy to have received support from this partnership, for various reasons. "They (JDRF) want to fund science and research that will lead to better lives for people with diabetes," he says. In terms of JDRF's international peer review process, "They're...very highly regarded, and they use the highest standards in terms of their own scientists. They get the best people." And of course, "They bring money and professionalism to the table, and allow CIHR to do a lot more than they otherwise could."

JDRF's mission also affects the way researchers working with JDRF do their work, according to Dr. Hill. "We're very aware as investigators that the endpoints of the research are not simply producing scientific advances which are logged as high-quality papers, but that the sponsor agency is looking for information it can translate into a clinical cure for diabetes." This, according to Hill, makes investigators try harder than ever to perform the right experiment that will move the science to the point where it can transfer to clinical practice.

In addition to the partnerships supporting the New Emerging Teams, III also partnered with JDRF in support of a Stem Cells and Diabetes Workshop in March 2002, convened to bring together diabetes and stem cell researchers for discussions on applying stem cell technologies to the treatment and management of diabetes. Although the criteria for partnership vary from one project to the next, Ms. Shiff says "what is most important is for both parties to set and achieve goals that are mutually beneficial."

On the web at www.cihr.gc.ca/iii.html

A Tour of the III Home Page

III Home
A good place to start! On this page are links to the pages described below, plus top stories and recent announcements of events in infection and immunity.

About III
Here you'll find links to quick overviews of Institute of Infection and Immunity strategic priorities and the research areas encompassed by the Institute. You'll also find links to a summary of Institute initiatives, introductions to our Scientific Director and Institute Advisory Board members, and to the other 12 CIHR institutes.

III Funding
This page links to application information and deadlines for new Requests for Applications (RFA) launched by the Institute of Infection and Immunity. From here you can access all CIHR funding opportunities or check funding decisions and archived opportunities. This page also links to information on applying for support from III for a workshop or symposium.

III Publications
Visit the links on this page to review our strategic plan and annual report, Institute Advisory Board meeting minutes, newsletters, and conference proceedings.

Institute Initiatives
This page provides dates and locations of conferences, meetings and symposiums supported by III, as well as events organized by the Institute.

III Calendar
Check this page for dates and locations of conferences and events in the infection and immunity communities, Institute Advisory Board meetings, and quarterly activity reports.

III on the road

Dr. Bhagirath Singh was invited to attend the 5th Canadian National Immunization Conference, which took place December 2002 in Victoria, B.C. Organized by the Population and Public Health Branch of Health Canada and the Canadian Pediatric Society, the conference was themed on progressing "from vision to action" on a proposed National Immunization Strategy (NIS) for Canada.

The conference coincided with the release of the Romanow report and its call for a national immunization strategy. The proposed NIS as featured at the conference encompasses vaccine safety and procurement, immunization registries, national collaboration and goals, and supportive activities including education, research and surveillance of diseases preventable through vaccination. These targets reflect the Institute of Infection and Immunity's selection of innovation in vaccine research as one of nine guiding strategic research priorities.

Photo contest

Have we stumped you? We've received limited entries to our "On the lookout for bugs" contest for the perfect picture or graphic that illustrates infection and immunity. To make the competition a little steeper, we've extended the deadline to Feb. 28, 2003. For more information, visit www.cihr.gc.ca/institutes/iii/news/photo_contest_e.shtml. Send your submissions either by e-mail, or on disk or CD (see page 2 for our contact information).

Event Announcements

On our Calendar of Events page, we're now posting listings of upcoming workshops, symposiums and conferences in the areas of infection and immunity. Send us a paragraph describing your event, including the date and location, and we'll take care of the rest.

Correction

III New Emerging Team Tackles Asthma, Microcosm-III September 2002

The New Emerging Team "Origins of Asthma in Childhood: ..." profiled in the September 2002 issue of Microcosm-III is supported by 3 partners:
CIHR Institute of Circulatory and Respiratory Health (ICRH),
CIHR Institute of Human Development, Child and Youth Health (IHDCYH), and theCIHR Institute of Infection and Immunity (III).

The Institute of Infection and Immunity apologizes for not recognizing ICRH and IHDCYH in the article.

What's New at III

Strategic Funding

Safe Food and Water Initiative: Microbial Contamination of Food and Water and Antimicrobial Resistance in the Food Chain

The Institute, together with the CIHR Institute of Population and Public Health and five federal members of the Canadian Research Coalition for Safe Food and Water, has launched a Request for Applications (RFA) to lay a framework for the coordination of Canadian research in the areas of food and water safety. Over 200 known diseases are caused by food- and waterborne pathogens, and can produce symptoms ranging from mild discomfort to acute or chronic illness, while some infections are fatal. Issues arising from factors including an aging population, globalization, and the use of antibiotics in agriculture need to be addressed by top-notch research that will lead to new procedures and policies. Successful applications to the RFA will combine the strengths, resources and expertise of researchers from diverse sectors. This RFA follows the May 2002 launch of a Microbial Safety of Food and Water Needs, Gaps and Opportunities Assessment Grant and a related New Emerging Team Grant in Anti-microbial Resistance, Health System Implications and Health Outcomes.

For more information on these RFA, please visit our website and follow the III Funding link to the 2002 III funding opportunities.

Meeting the Health Challenge of Prion Diseases

CIHR-III and Health Canada will be hosting national and international experts on prion diseases at a conference in April 2003 in Toronto, Ont. Both Canada and the United States have recently seen their first cases of variant Creutzfeldt - Jakob disease, the human form of bovine spongiform encephalopathy. There is evidence suggesting that other prion diseases may be contracted by humans from game animals. The objectives of the conference are to review the etiology and transmission of prion diseases, the current state of international prion research, and to draft a Canadian research agenda. Please follow the link on our home page for more information.

III Events

III Scientific Director Dr. Bhagirath Singh and IAB member Dr. Danielle Malo talk with local researchers at the September 2002 Institute Advisory Board meeting in Winnipeg, Man.

Next IAB Meetings—The next meeting of the Institute Advisory Board will take place May 1 and 2, 2003 in Montreal, Que. See our website (III Publications) for minutes of IAB meetings. If you would like to arrange to meet with Institute staff while we are in Montreal, please contact III Assistant Director Bruce Moor (bmoor@uwo.ca).

Conference on Behavioural and Social Science Aspects of Hepatitis C Research—A joint Institute of Infection and Immunity and Health Canada-sponsored conference on hepatitis C will take place in the spring of 2003 in Toronto, Ont. Of the thousands of Canadians infected with the hepatitis C virus, many belong to marginalized populations characterized by distinct social and behavioural p[illegible] There are 4,000 projected new infections per year, and swiftly rising economic costs. This conference will bring together experts to discuss socio-behavioural aspects of hepatitis C, and is expected to result in recommendations and priorities for the research community.

Partnership Forum—The Institute will be hosting a partnership forum to provide an environment for volunteer organizations and professional societies that share an interest in the Institute's mandate to explore potential partnerships with the Institute and with each other. The forum, taking place in Toronto, Ont., on Jan. 31 and Feb. 1, 2003, will provide opportunities for general discussions on research partnerships and knowledge translation, for communication of common goals, and for discussion of future collaboration.

Canadian Research Coalition for Safe Food and Water

(Continued from page 1)

technical and scientific advisors to Justice O' Connor during the Walkerton inquiry, which resulted in recommendations for improvements to water treatment, inspection and delivery systems in Ontario.

The CWN is but one example of the 15 partners in the coalition, and an indicator of the sheer volume of skill and knowledge represented. The partners bring diverse expertise across a broad range of issues relating to safe food and water. Discussion at the most recent meeting of the coalition touched on expansion, as already additional organizations are interested in joining. As well, the coalition, meant to build upon individual partners' capacities and encourage joint projects among the partners, has attracted international interest.

Food and water safety issues span myriad research questions. Dr. Scott McEwen, an expert advisor to a variety of governmental and non-governmental organizations in North America and Europe on food safety, antibiotic resistance and epidemiology, describes it as an immensely broad and encompassing area. "There are so many dimensions to it, from trying to control pathogens on the farm, through slaughter, processing, distribution, and finally to food service or home consumption." Also, new emerging pathogens arising from global climate change, shifting population demographics, increased globalization and the threat of bioterrorism add additional research challenges. McEwen, a professor in the Department of Population Medicine at the University of Guelph, adds that the nature of food and water safety problems demands an equally broad and encompassing range of multidisciplinary approaches to research that involves microbiology, molecular biology, epidemiology, and toxicology, as well as food science, engineering, and risk analysis.

Even before the deaths of seven people from an *E. coli* 0157:H7 (the etiologic agent of the more commonly known "hamburger disease") outbreak in Walkerton, Ont. in May 2000, several million research dollars were being directed to the area every year. But the research communities have been too insular, says one of Canada's

Partners in the Canadian Research Coalition for Safe Food and Water attended an anniversary meeting Oct. 31, 2002 at Wilson House, Meech Lake, to discuss a path for the year ahead.

leading researchers in the area. "I think there's already quite a bit being done but there's little communication or co-ordination among the groups," says Dr. Brett Finlay, professor in the Biotechnology Laboratory at the University of British Columbia, the Department of Biochemistry and Molecular Biology, and the Department of Microbiology and Immunology. "I would like to see communication among all the players. That always leads to better research questions and better ways of actually addressing them."

Finlay, whose research focuses on the mechanisms by which bacterial pathogens cause disease at a molecular level, was one of the organizers of an initial food safety workshop designed to bring together scientists from Canadian universities, government departments, and industry. Supported by the Medical Research Council and Health Canada, the workshop took place in June 2000, coincidentally just days after Canada learned about the events in Walkerton. The participants came together to discuss Canada's food safety issues as they relate to research, and to galvanize the formation of a national research network.

Several priorities representing Canada's needs in food and water safety research evolved from the workshop. Passed on to the Institute of Infection and Immunity, these recommendations became the basis for the Institute's initiatives in the area—including the formation of a research coalition.

The two research initiatives that have already

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Canadian Research Coalition for Safe Food and Water

Agriculture and Agri-Food Canada

Canadian Agri-Food Research Council

Canadian Aquaculture Industry Alliance

Canadian Bacterial Diseases Network*

Canadian Food Inspection Agency

Canadian Institutes of Health Research

Canadian Pork Council

Canadian Veterinary Medical Association

Canadian Water Network*

Chicken Farmers of Canada

Environment Canada

Genome Canada

Health Canada

National Research Council Canada

Natural Sciences and Engineering Research Council of Canada

* A Network of Centres of Excellence

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III Hosts its First Application Development Workshop

The Institute of Infection and Immunity held an Application Development Workshop on Dec. 11, 2002, in Ottawa, Ont., in support of the Request for Applications on the Microbial Contamination of Food and Water and Antimicrobial Resistance in the Food Chain, Phase II—Establishing a Framework. The workshop convened researchers from federal and academic sectors across Canada, and facilitated opportunities for discussion of mutual research interests, while representatives from the CIHR Research Portfolio and Programs divisions were on hand to discuss the RFA process.

Teams of researchers at III's application development workshop, held at the Canadian Museum of Nature in Ottawa in December, participate in a mock application and team-building exercise.

been launched include a Needs, Gaps and Opportunities Assessment Grant launched in May 2002, supported by CIHR-III, the CIHR Knowledge Translation Branch, the CWN and the Natural Sciences and Engineering Research Council of Canada, to provide an environmental scan of current research in the areas of microbial contamination of food and water and antimicrobial resistance in the food chain. In November 2002, a major Request for Applications (RFA) was launched, supported by III, the CIHR Institute of Population and Public Health, and five federal departments (Agriculture and Agri-Food Canada, the Canadian Food Inspection Agency, Environment Canada, Health Canada, and the National Research Council Canada). The RFA targets the creation of new research teams between federal and university researchers, focused on addressing common or synergistic research questions. Finlay points to the requirement for partnerships as a unique aspect of this RFA. "By making you have partners, you bring other people in who have their own questions, and then you work together towards developing common questions and trying to figure out how to actually answer those questions."

The Institute's initiatives in this area complement CIHR's establishment of a national research agenda for the influences of the environment on health, one of nine CIHR cross-cutting strategic initiatives. After national consultation, review of the field nationally and internationally, and a national forum, CIHR arrived at outcomes that included a recognized need for investigation into the effects of hazards in the environment, including microbiological agents and climate change, on human health. A major Environmental Influences on Health RFA is being developed for launch in 2003.

Researchers in the U.S. and the U.K. have historically had more funding avenues open to them than Canadian researchers. McEwen says it's no surprise that, for example, the U.S. has been a leader in developing techniques for risk analysis—both the scientific basis for health risk and policy-related issues—and the U.K. has led in studying the mathematical aspects of transmission dynamics of infectious agents. While it can benefit from this expertise, "Canada should have its own capabilities in these things, and I think that's one of the areas that is most critical to build up—our capabilities in terms of highly trained personnel," says McEwen.

McEwen is glad to see CIHR investing research dollars in food and water safety. "It's extremely encouraging for those of us who work in these areas that CIHR thinks this is important. We hope it's a long-standing commitment."

CIHR IRSC

Canadian Institutes of Health Research

Institute of Infection and Immunity Mission

The mission of the Institute of Infection and Immunity (III) is to establish national leadership by setting research priorities and creating programs that promote innovative research aimed at reducing the global burden of infection and immune-based diseases. The ultimate goal of such strategic research is to improve human life expectancy and the overall quality of life.